FINAL REPORT

DEVELOPMENT OF A GRAZING MANAGEMENT SYSTEM FOR LOW INITIAL RATE OF DIGESTION (LIRD) ALFALFA

19960455

March 2000

Prepared by: Beaverdale Beef Producers Inc.

AGRI-FOOD INNOVATION FUND

Canada

Saskatchewan

19960455

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FINAL REPORT FOR MARCH 31,2000

SASKATCHEWAN AGRI-FOOD INNOVATION FUND MANAGEMENT
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Executive Summary

Low Initial Rate of Digestion (LIRD) Alfalfa Grazing Demonstration

Beaverdale Beef Producers Inc.

The objective of this demonstration was to determine the reduced bloat potential of AC Grazeland alfalfa, a low initial rate of digestion (LIRD) variety. The two year trial collected data from steers, all implanted with a Rumensin CRC bolus, grazing on paddocks of AC Grazeland, a mix of AC Grazeland and Meadow Brome (MB), and a control paddock of Beaver alfalfa.

The number of bloats in the LIRD and the Beaver control were similar in numbers. Therefore the LIRD alfalfa was found to be definitely not "bloat free" but it did appear to slow the development of the bloat and/or the severity of the bloat. In most cases it provided more time to treat the animal when compared to the Beaver alfalfa especially during the times of very lush growth (high risk).

The Rumensin CRC bolus also seemed to help in the "slowing" of the bloat development and also in reducing the severity of the bloat. The bolus alone however also could not claim to be "safe" as some of the cattle with the bolus did in fact bloat on both alfalfa variety paddocks.

Another interesting note was that no animals were treated for bloat on the LIRD + MB mix paddock over the entire length of the trial. This result is very encouraging as we noted that in both years, the steers preferred the MB initially and we surmised that it was this extra fiber in the diet that might have been responsible for the bloat protection.

The LIRD + MB paddocks gained the most at a total average gain of 176.23 lbs., the LIRD came in second gaining an average total of 135.78 lbs., and the Beaver paddock come in last at 143.33 lbs. of total gain. Also of note is that the groups with the Rumensin bolus gained more than those without it accounting for an average increase of 0.25 lbs./day over all three paddocks

During the second year of the trial, two small additional trials were carried out to observe their effect on bloat. The first involved a crossover of animals on the Beaver (control) paddock and the MB+LIRD paddock with animals in the LIRD paddock to determine if the same animals would bloat. The results were similar to those in the main test where animals that bloated on low-bloat alfalfa tended to bloat on the Beaver (control) and visa versa with no animals bloating on the MB-LIRD mix. The second was the testing of an unregistered bloat aid called BloCare 4511, which is added to the drinking water. There were no bloats treated and the ADG of the steers increased by 1.00 lbs./head/day compared to the best ADG of steers in the MB+LIRD mix paddock. The steers appeared to be extremely full, but did not bloat. This treatment proved to be 100% effective in the trial.

In conclusion the mix of MB grass and AC Grazeland proved to be the best way to incorporate LIRD alfalfa into a grazing system, in terms of superior animal ADG, elimination of bloat and therefore reduced management time and costs. However, in terms of maximizing ADG and production, the data collected in this trial would suggest that the use of BloCare 4511 along with a straight alfalfa grazing regime would be management practice of choice.

A) Summary:

This has been a three-year project designed to test the *LOW INITIAL RATE OF DIGESTION (LIRD) ALFALFA.* The first year was strictly to set up the trial plots and the two following years were used to collect data on the trials. The trials for the second year were as closely duplicated to the first year as possible to get comparable results.

B) Technical Report:

- see attached

C) Personnel:

- over the three years of the project we had a full time project manager hired at a wage of $15.00 per hour --- Noreen Fenske was a very reliable and dedicated employee who assured that the project ran on a smooth and uninterrupted schedule.
- We hired a summer student for two of the three summers at a wage of $8.00 per hour --- this has provided assistance to the project manager along with supplying the students with valuable job experience for two university students who are furthering their education in the field of agriculture.
- The project was closely supervised and monitored by the members of the Beaverdale Beef Producers --- tasks performed by the members included monitoring of livestock, setting up and dismantling of handling

facilities, project maintenance and organization of demonstration days.
- The entire project was also closely supervised by personnel of the Extension Services, namely Baz Fritz --- his endless energy and devotion was greatly appreciated
- We received endless amounts of help and support from staff of Ducks Unlimited.

D) Equipment:

- no capital equipment purchases have been made
- scale and handling facility were rented for use during the trial period.
- Mineral feeders were leased for the duration of the project
- Water handling equipment was also leased

E) Project Photos:

- attached

F) Expense Statement:

- attached

G) Innovation Fund Acknowledgement

- Innovation Fund was acknowledged in a great number of news releases over the course of the three years

- Signs were erected at the project site recognizing the contributions made by the various organizations including AFIF
- attached find a publication from the local Rural Municipal office that was published and distributed in March of 2000 to all the rate payers in the RM of Garry No. 245.

H. Project Public Information Materials

- a field day was run in each of the three years that the project was in operation
- processing days were well attended by club members and the general public --- demonstrations were held on vaccination, parasite control, growth implants and boluses.
- Lengthy explanations were given on the research that was being carried out at the project.

TECHNICAL REPORT FALL 1998:

The trial began on June 15, 1998 with forty steers being randomly placed on test paddocks as follows: 10 head on LIRD Alfalfa with Rumensin bolus; 10 head on LIRD Alfalfa with no Rumensin bolus; 5 head on Beaver Alfalfa with Rumensin bolus; 5 head on Beaver Alfalfa with no Rumensin Bolus; 5 head on LIRD + Meadow Bromegrass mix with Rumensin bolus; 5 head on LIRD + Meadow Bromegrass mix with no Rumensin bolus.

Cattle were monitored closely for bloat and treated when necessary. Treatment records are included. Some things of interest in the treatment results should include that with the very dry spring there were no incidences of bloat until the rain started but with the large amounts of rain later, the alfalfa became very lush and green eventually resulting in all animals being removed from the trial paddocks to minimize losses and distress to the animals. The alfalfa was allowed to mature for a period of 19 days before the trial was restarted for a period of approximately 2 weeks.

The LIRD Alfalfa was found to be definitely not "bloat free" but it did appear to slow the development of the bloat and/or the severity of the bloat giving in most cases more time to treat the animal when compared to the Beaver Alfalfa especially during the times of very lush green growth (high risk). The LIRD cattle were actually placed on the lush green alfalfa growth for 3 days whereas the Beaver (Control) group was only on the lush green growth for a period of approximately 4 hours before all cattle were removed for their own safety.

The Rumensin bolus also seemed to help in the "slowing" of the bloat development and also in reducing of the severity. Some of the chronic bloating cattle were actually given a bolus if they did not already have one. This seemed to help in most cases were it seemed there was no other alternative other than placing them on plain grass or dry hay to get them off the alfalfa. The bolus alone however also could not claim to be "safe" as some of the cattle with the bolus did in fact bloat on both alfalfa variety paddocks.

Another interesting note was that no animals were treated for bloat on the LIRD+Meadow Brome mix paddock over the entire length of the trial.

Cattle were weighed weekly when on trial with the LIRD + Meadow Brome gaining the highest and LIRD gaining higher than Beaver Alfalfa. Also of note, the groups with the Rumensin bolus gained higher than those without within each paddock. Weights and Average Daily Gains (ADG) are also included. The ADGs of the steers on test seem to be very acceptable if not exceptional for steers on pasture conditions.

The cattle were weighed for the final time on August 11, 1998 to end the trial data. 18 head were shipped on August 12 with the remaining 20 head going to market on August 19, 1998 at Heartland Livestock in Yorkton.

ALFALFA/LIRD GRAZING PROJECT RESULTS - SUMMARY

GROUP	LIRD bolus	LIRD no bolus	LIRD +MB bolus	LIRD+MB no bolus	CONTROL bolus	CONTROL no bolus
Bolus						
Initial Wt. - Jun15	**694.45**	**676.4**	**685.9**	**693.5**	**699.2**	**685.9**
Wt. At 8 days - Jun23	**722**	**694.45**	**735.3**	**729.6**	**727.7**	**723.9**
Net Gain - 8 days	27.55	18.05	49.4	36.1	28.5	38
ADG - 8 days	3.44	2.26	6.18	4.51	3.56	4.75
# Bloat Treatments	0	1	0	0	1	0
Wt. at 14 days - Jun30	**752.4**	**708.7**	**752.4**	**771.4**	**754.3**	**752.4**
Net Gain (day 8 to 14)	30.4	14.25	17.1	41.8	26.6	28.5
ADG (day 8 to 14)	4.34	2.04	2.44	5.97	3.80	4.07
# Bloat Treatments	1	3	0	0	2	1
Wt. at 41 days - Jul27	**804.65**	**775.83**	**815.1**	**815.1**	**813.2**	**776.63**
Net Gain (day 14 to 41)	52.25	55.89	62.7	43.7	58.9	49.95
ADG (day 14 to 41)	1.94	2.07	2.32	1.62	2.18	1.85
# Bloat Treatments	8	17	0	0	3	9
Wt. at 49 days - Aug4	**836**	**795.89**	**845.5**	**845.5**	**828.4**	**807.5**
Net Gain (day 41 to 49)	31.35	20.06	30.4	30.4	15.2	30.87
ADG (day 41 to 49)	3.92	2.51	3.80	3.80	1.90	3.86
# Bloat Treatments	0	5	0	0	1	0
Wt. at 56 days - Aug11	**844.08**	**806.97**	**868.3**	**863.55**	**844.55**	**806.31**
Net Gain (day 49 to 56)	8.08	11.08	22.8	18.05	16.15	-1.19
ADG (day 49 to 56)	1.15	1.58	3.26	2.58	2.31	-0.17
# Bloat Treatments	4	9	0	0	9	1
TOTAL GAIN:	***149.63***	***121.92***	***182.4***	***170.05***	***145.35***	***141.31***
TOTAL ADG:	***2.67***	***2.18***	***3.26***	***3.04***	***2.60***	***2.52***
TOTAL BLOAT TREATMENTS:	***13***	***35***	***0***	***0***	***16***	***11***
# OF HD BLTD /TOTAL GROUP	*7 / 10*	*8 / 10*	*0 / 5*	*0 / 5*	*5 / 5*	*3 / 5*
# OF HD BLTD > 3 TIMES	1	6	0	0	3	1

SPECIAL NOTES:

1.) LIRD group was placed on fresh paddock for 3 days (Jul6-8) before pulling off test while control group was only on fresh paddock for approx. 4 hours before pulling all groups off test for 2 weeks. This period of time included a large number of the bloats in the LIRD group and may make results appear biased. In the 4 hours on the control, it was obvious we would have had severe and large numbers of bloats so the animals were pulled before total disaster occurred. This is when we lost an animal on the control.

2.) The faster growing alfalfa after the heavy rains seemed to result in less fibrous growth of alfalfa and thus more bloats. High humidities may have aggravated this problem as well - dews were heavy in both mornings and evenings

3.) More bloats occurred in the coolness of the day particularly when daytime temperatures were over 25C.

4.) It appeared that the bloats on the LIRD alfalfa were not as severe and slower developing than the control. This allowed more time to notice and treat a bloater.This also applied again if the animal had a bolus in most cases. The exception to this is when bloat conditions were most favorable. Ie: when moved to a new paddock when animals aggressively grazed for at least 11/2 hours. This trend could be minimized by rotating cattle faster.

5.) The last time animals were pulled off LIRD and CONTROL paddocks, the alfalfa growth stage was advanced. ie: 75% to 80% for LIRD and 50% bloom on CONTROL.

6.) Alfalfa hay and Red Clover hay was added to the LIRD and CONTROL paddocks at the end of the tests. This had little or no effect on bloats as animals did not consume the dry hay.

ALFALFA/LIRD GRAZING RESULTS - PERFORMANCE

LIRD - WITH BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6651	770	731.5	830	788.5	7.13	850	807.5	2.71	900	855	1.76	930	883.5	3.56	960	912	4.07	180.5	3.22
6652	700	665	730	693.5	3.56	760	722	4.07	850	807.5	3.17	860	817	1.19	890	845.5	4.07	180.5	3.22
6653	800	760	840	798	4.75	870	826.5	4.07	910	864.5	1.41	960	912	5.94	930	883.5	-4.07	123.5	2.21
6657	660	627	680	646	2.38	730	693.5	6.79	790	750.5	2.11	830	788.5	4.75	850	807.5	2.71	180.5	3.22
6658	750	712.5	770	731.5	2.38	800	760	4.07	850	807.5	1.76	890	845.5	4.75	905	859.75	2.04	147.25	2.63
6663	710	674.5	740	703	3.56	750	712.5	1.36	810	769.5	2.11	850	807.5	4.75	860	817	1.36	142.5	2.54
6669	810	769.5	820	779	1.19	880	836	8.14	890	845.5	0.35	910	864.5	2.38	900	855	-1.36	85.5	1.53
6677	710	674.5	750	712.5	4.75	780	741	4.07	830	788.5	1.76	890	845.5	7.13	860	817	-4.07	142.5	2.54
6684	730	693.5	740	703	1.19	770	731.5	4.07	840	798	2.46	860	817	2.38	890	845.5	4.07	152	2.71
6689	670	636.5	700	665	3.56	730	693.5	4.07	800	760	2.46	820	779	2.38	840	798	2.71	161.5	2.88
Average	**731**	**694.45**	**760**	**722**	**3.44**	**792**	**752.4**	**4.34**	**847**	**804.65**	**1.94**	**880**	**836**	**3.92**	**888.5**	**844.08**	**1.15**	***Average***	***149.63***	***2.67***

LIRD - NO BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6654	740	703	760	722	2.38	740	703	-2.71	820	779	2.81	840	798	2.38	850	807.5	1.36	104.5	1.87
6656	630	598.5	630	598.5	0.00	640	608	1.36										—	—
6664	750	712.5	760	722	1.19	790	750.5	4.07	830	788.5	1.41	860	817	3.56	880	836	2.71	123.5	2.21
6665	690	655.5	730	693.5	4.75	720	684	-1.36	770	731.5	1.76	780	741	1.19	785	745.75	0.68	90.25	1.61
6671	640	608	680	646	4.75	700	665	2.71	760	722	2.11	760	722	0.00	800	760	5.43	152	2.71
6676	700	665	740	703	4.75	780	741	5.43	810	769.5	1.06	860	817	5.94	840	798	-2.71	133	2.38
6678	740	703	750	712.5	1.19	800	760	6.79	830	788.5	1.06	860	817	3.56	885	840.75	3.39	137.75	2.46
6680	760	722	780	741	2.38	790	750.5	1.36	870	826.5	2.81	890	845.5	2.38	885	840.75	-0.68	118.75	2.12
6682	710	674.5	720	684	1.19	760	722	5.43	860	817	3.52	850	807.5	-1.19	860	817	1.36	142.5	2.54
6685	760	722	760	722	0.00	740	703	-2.71	800	760	2.11	840	798	4.75	860	817	2.71	95	1.70
Average	**712**	**676.4**	**731**	**694.45**	**2.26**	**746**	**708.7**	**2.04**	**816.67**	**775.83**	**2.07**	**837.78**	**795.89**	**2.51**	**849.44**	**806.97**	**1.58**	***Average***	***121.92***	***2.18***

LIRD + MEADOW BROME - BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6661	760	722	820	779	7.13	830	788.5	1.36	910	864.5	2.81	930	883.5	2.38	960	912	4.07	190	3.39
6662	660	627	710	674.5	5.94	740	703	4.07	810	769.5	2.46	850	807.5	4.75	880	836	4.07	209	3.73
6666	740	703	800	760	7.13	820	779	2.71	870	826.5	1.76	920	874	5.94	945	897.75	3.39	194.75	3.48
6672	690	655.5	740	703	5.94	750	712.5	1.36	820	779	2.46	860	817	4.75	875	831.25	2.04	175.75	3.14
6690	760	722	800	760	4.75	820	779	2.71	880	836	2.11	890	845.5	1.19	910	864.5	2.71	142.5	2.54
Average	**722**	**685.9**	**774**	**735.3**	**6.175**	**792**	**752.4**	**2.44**	**858**	**815.1**	**2.32**	**890**	**845.5**	**3.8**	**914**	**868.3**	**3.26**	***Average***	***182.4***	***3.26***

LIRD + MEADOW BROME - NO BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6659	780	741	810	769.5	3.56	830	788.5	2.71	870	826.5	1.41	900	855	3.56	930	883.5	4.07	142.5	2.54
6668	680	646	730	693.5	5.94	760	722	4.07	820	779	2.11	860	817	4.75	880	836	2.71	190	3.39
6673	720	684	820	779	11.88	870	826.5	6.79	920	874	1.76	930	883.5	1.19	945	897.75	2.04	213.75	3.82
6681	650	617.5	620	589	-3.56	700	665	10.86	790	750.5	3.17	820	779	3.56	840	798	2.71	180.5	3.22
6683	820	779	860	817	4.75	900	855	5.43	890	845.5	-0.35	940	893	5.94	950	902.5	1.36	123.5	2.21
Average	**730**	**693.5**	**768**	**729.6**	**4.5125**	**812**	**771.4**	**5.97**	**858**	**815.1**	**1.62**	**890**	**845.5**	**3.8**	**909**	**863.55**	**2.58**	***Average***	***170.05***	***3.04***

CONTROL - BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6667	720	684	750	712.5	3.56	770	731.5	2.71	820	779	1.76	840	798	2.38	860	817	2.71	133	2.38
6670	710	674.5	730	693.5	2.38	800	760	9.50	850	807.5	1.76	850	807.5	0.00	895	850.25	6.11	175.75	3.14
6674	750	712.5	760	722	1.19	780	741	2.71	840	798	2.11	850	807.5	1.19	860	817	1.36	104.5	1.87
6675	780	741	830	788.5	5.94	840	798	1.36	930	883.5	3.17	940	893	1.19	940	893	0.00	152	2.71
6687	720	684	760	722	4.75	780	741	2.71	840	798	2.11	880	836	4.75	890	845.5	1.36	161.5	2.88
Average	**736**	**699.2**	**766**	**727.7**	**3.56**	**794**	**754.3**	**3.8**	**856**	**813.2**	**2.18**	**872**	**828.4**	**1.9**	**889**	**844.55**	**2.31**	***Average***	***145.35***	***2.60***

CONTROL - NO BOLUS

Steer ID	Wt Jun 15		Wt Jun 23		ADG	Wt Jun 30		ADG	Wt July27		ADG	Wt Aug 4		ADG	Wt Aug 11		ADG	Overall Gain (shrunk)	Overall ADG (shrunk)
	Full	Shr 5%	Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%		Full	Shr 5%			
6655	700	665	750	712.5	5.94	770	731.5	2.71	830	788.5	2.11	860	817	3.56	870	826.5	1.36	161.5	2.88
6660	740	703	770	731.5	3.56	780	741	1.36	840	798	2.11	860	817	2.38	860	817	0.00	114	2.04
6679	730	693.5	780	741	5.94	800	760	2.71	840	798	1.41	880	836	4.75	865	821.75	-2.04	128.25	2.29
6686	810	769.5	850	807.5	4.75	900	855	6.79										—	—
6688	630	598.5	660	627	3.56	710	674.5	6.79	760	722	1.76	800	760	4.75	800	760	0.00	161.5	2.88
Average	**722**	**685.9**	**762**	**723.9**	**4.75**	**792**	**752.4**	**4.07**	**817.5**	**776.63**	**1.85**	**850**	**807.5**	**3.86**	**848.75**	**806.31**	**-0.17**	***Average***	***141.31***	***2.52***

ALFALFA/LIRD GRAZING PROJECT - TREATMENT DATA:

BLOAT TREATMENTS:

1. CONTROL - NO BOLUS:

Steer ID #	Bloat Score	Date	Time	# Times Treated & Other comments
88	2	29-Jun	8:30 PM	1
88	3	2-Jul	12:00PM	2
88	3	2-Jul	8:00 PM	3
88	4	3-Jul	9:00 PM	4
88	3	4-Jul	9:30 PM	5
88	3	5-Jul	9:00 PM	6
88	2	6-Jul	4:00 PM	7
88	2	7-Jul	9:00 PM	8
		8-Jul	11:30 AM	# 88 Received Bolus
		8-Jul	**11:30 AM**	**Moved Control Group to new paddock**
88	3	8-Jul	1:30 PM	9
86	5 (dead)	8-Jul	2:30 PM	(1)
		8-Jul	**4:30 PM**	**PULLED ALL CATTLE OFF TEST PADDOCKS**
		27-Jul		**RESTART TRIAL**
		4-Aug	**9:00 AM**	**Moved Control Group to new paddock**
79	2	4-Aug	11:00 AM	# 79 Given Bolus at treatment
		5-Aug	**9:00 AM**	**Moved Control Group to LIRD paddock (mix groups)**
		6-Aug	**4:00 PM**	**Moved all cattle from LIRD paddock to grass**
		7-Aug	**8:00 AM**	**Try on LIRD again**
		11-Aug		**Ship 18 head from LIRD/CONTROL group**
		12-Aug		**Place remaining cattle on LIRD+MB paddock**

2. CONTROL - WITH BOLUS:

Steer ID #	Bloat Score	Date	Time	# Times Treated & Other comments
74	2	19-Jun	6:00 AM	1
74	2	28-Jun	9:00 AM	2
75	2	29-Jun	8:30 PM	1
75	2	7-Jul	9:00 PM	2
		8-Jul	**11:30 AM**	**Moved Control Group to new paddock**
		8-Jul	**4:30 PM**	**PULLED ALL CATTLE OFF TEST PADDOCKS**
		27-Jul		**RESTART TRIAL**
70	3	28-Jul	1:00 PM	1
		4-Aug	**9:00 AM**	**Moved Control Group to new paddock**
70	3	4-Aug	11:00 AM	2
74	3	4-Aug	11:00 AM	3
75	3+	4-Aug	PM	3
87	4-free gas	4-Aug	PM	1
		5-Aug	**9:00 AM**	**Moved Control Group to LIRD paddock (mix groups)**
75	3	6-Aug		4
67	3	6-Aug		1
70	3	6-Aug		3
74	3	6-Aug		4
		6-Aug	**4:00 PM**	**Moved all cattle from LIRD paddock to grass**
		7-Aug	**8:00 AM**	**Try on LIRD again**
74	1	7-Aug	8:00 AM	Bloat on grass overnite - kept off LIRD for day (on grass)
		11-Aug		**Ship 18 head from LIRD/CONTROL group**
		12-Aug		**Place remaining cattle on LIRD+MB paddock**

3. LIRD + MEADOW BROME

No Bloat Treatments on L+MB groups both with and without bolus

4. LIRD - NO BOLUS:

Steer ID #	Bloat Score	Date	Time	# Times Treated & Other comments
82	2	18-Jun	6:00 AM	1
56	3	28-Jun	9:00AM	1
56	3	29-Jun	8:30 PM	2
56	3	30-Jun	1:30 PM	3
56	3	1-Jul	3:00 PM	4
56	2	3-Jul	9:00 PM	5
		6-Jul	**11:00 AM**	**Moved LIRD group o new paddock**
56	5 (dead)	6-Jul	3:00 PM	6
85	3	6-Jul	4:00 PM	1
65	3	6-Jul	4:00 PM	1
78	2	6-Jul	4:00 PM	1
82	2	6-Jul	4:00 PM	2
64	3	7-Jul	9:00 AM	1
82	3	7-Jul	9:00 AM	3
80	3	7-Jul	9:00 AM	1
78	3	7-Jul	9:00 AM	2
85	3	8-Jul	8:30 AM	2
54	2	8-Jul	8:30 AM	1
80	3	8-Jul	8:30 AM	2
82	3	8-Jul	8:30 AM	4
64	3	8-Jul	8:30 AM	2
65	3	8-Jul	4:00 PM	2
		8-Jul	**4:30 PM**	**PULLED ALL CATTLE OFF TEST PADDOCKS**
		27-Jul		**RESTART TRIAL**
82	2	28-Jul	AM	5
82	2	28-Jul	PM	6 #82 Given bolus at treatment
78	2	28-Jul	PM	3
64	3	29-Jul		3
78	3	29-Jul		4
		4-Aug	**9:00 AM**	**Moved LIRD group o new paddock**
64	3	4-Aug	PM	4
82	3	4-Aug	PM	7
80	3	5-Aug	9:00 AM	3
64	3	5-Aug	9:00 AM	5 #64 Given bolus Aug.5 @ 1PM
54	3	6-Aug		2
80	3	6-Aug		4
65	3	6-Aug		3
		6-Aug	**4:00 PM**	**Moved all cattle from LIRD paddock to grass**
		7-Aug	**8:00 AM**	**Try on LIRD again**
80	3	7-Aug	8:00 AM	Bloat on grass overnite - kept off LIRD for day (on grass)
80	3	10-Aug	1:30 PM	6
		11-Aug		**Ship 18 head from LIRD/CONTROL group**
		12-Aug		**Place remaining cattle on LIRD+MB paddock**

5. LIRD - WITH BOLUS

Steer ID #	Bloat Score	Date	Time	# Times Treated & Other comments
58	2	28-Jun	9:00 AM	1
58	4	3-Jul	9:00 PM	2
58	4	4-Jul	8:00 AM	3
58	4	4-Jul	2:00 PM	4
		6-Jul	**11:00 AM**	**Moved LIRD group o new paddock**
69	3	7-Jul	9:00 AM	1
63	2	7-Jul	9:00 PM	1
84	3	7-Jul	9:00 PM	1
84	1	8-Jul	4:00 PM	2
		8-Jul	**4:30 PM**	**PULLED ALL CATTLE OFF TEST PADDOCKS**
		27-Jul		**RESTART TRIAL**
52	2	29-Jul		1
		4-Aug	**9:00 AM**	**Moved LIRD group o new paddock**
89	3	6-Aug		1
69	3	6-Aug		2
58	3	6-Aug		5
51	3	6-Aug		1
		6-Aug	**4:00 PM**	**Moved all cattle from LIRD paddock to grass**
		7-Aug	**8:00 AM**	**Try on LIRD again**
		11-Aug		**Ship 18 head from LIRD/CONTROL group**
		12-Aug		**Place remaining cattle on LIRD+MB paddock**

OTHER TREATMENTS:

Steer ID #	DATE	AILMENT	TREATMENT (comments)
53	7-Jun	pneumonia	Micotil
60	11-Jun	pneumonia	Micotil
65	11-Jun	pinkeye	35cc. Liq. LA
88	11-Jun	pneumonia	Micotil
66	12-Jun		Castrate
73	12-Jun		Castrate
84	12-Jun		Castrate
65	15-Jun	pinkeye	35cc. Liq. LA
74	15-Jun	pinkeye	purple spray in eye
81	15-Jun	pinkeye	35cc. Liq. LA
81	17-Jun	pneumonia/scours	4 Hava Span Boluses
81	23-Jun	pinkeye	35cc. Liq. LA & spec. formula
81	25-Jun	pinkeye	Special Formula ointment in eyes
65	13-Jul	pinkeye	35cc. Liq. LA & spec. formula
69	13-Jul	pinkeye	35cc. Liq. LA & spec. formula
83	13-Jul	pinkeye	Special Formula ointment in eyes
78	13-Jul	footrot	45cc. Liq.LA
69	15-Jul	pinkeye	35cc. Liq. LA & spec. formula
51	4-Aug	pinkeye	40cc. Liq. LA & spec. formula
57	7-Aug	pinkeye	Special Formula ointment in eyes
67	7-Aug	breathing heavy	35cc. Liq. LA
75	8-Aug	pinkeye	Special Formula ointment in eyes
76	11-Aug	pinkeye	Special Formula ointment in eyes

1999 LOW BLOAT ALFALFA (LIRD) REPORT
GRAZING DEMONSTRATION

1999 was the second year of grazing on the low bloat alfalfa paddocks that were seeded in 1997. In 1998 we grazed 40 feeder steers on alfalfa paddocks and in 1999 we cut back our cattle numbers to 32 head to allow for an extended grazing trial. Like the '98 trial, the cattle were randomly designated to the 3 alfalfa trial variations which included:

Paddock A) 10 acres of LIRD alfalfa (AC Grazeland BR) which contained 16 steers and was divided with one electric wire to allow back-and-forth rotation;

Paddock B) 5 acres of a mix of Meadow Brome Grass and LIRD Alfalfa also divided with one electric wire; and

Paddock C) 5 acres of Beaver Alfalfa for our control paddock which was used as a benchmark comparison for measurement of the number of bloats on each paddock.

Each paddock contained its own water source, minerals and back rubber for fly control. The water source was from a nearby slough and solar-pumped into three separate troughs located in each paddock. The handling facility was accessible to the cattle in each paddock for treatment and handling purposes. The perimeter fence consisted of two-line electric wires with a single dividing wire. Prior to steers going into the alfalfa paddocks, they were settled down and trained to the electric fence in a safe grass pasture.

The steers for the 1999 alfalfa grazing trial were purchased by Heartland Livestock Services in Yorkton in May and delivered to the grass site May 21st. The steers were settled and trained to the electrical fence, and processed on June 20th, and assigned to their home-grazing paddock on June 23rd. Processing included: vaccination for blackleg, parasite control, a growth implant and every other animal receiving the Rumensin CRC bolus. The steers were also checked for a poor castration as some displayed bully characteristics. Ten steers had remnant testicles removed. These steers had been branded with Heartland's brand and ear-tagged on purchase.

Following the initial grazing trial a couple of other small additional trials were carried out over a two-week period to observe the bloat effect. The first change consisted of a crossover of animals on the LIRD paddocks with ones on the control and the Meadow Brome-LIRD mix. The second add-on was the testing of an unregistered bloat aid that is added to the water called BloCare 4511.

Following the bloat testing, the animals were moved to a Meadow Brome pasture and sold two weeks later through the Yorkton Heartland market.

Discussion of Results

The main bloat test took place June 23 - July 19th. On day two of the trial, one animal had to be removed from the control because of repeated serious bloats. This animal was added to the Meadow Brome-LIRD group and never bloated again. To keep a balance in the total test, we removed the two top bloaters from the LIRD paddocks as twice as many cattle were in that group.

In summary, the number of bloats on the LIRD and the Control were similar in numbers. We feel in the LIRD paddocks the bloats were not as severe as the Control and there was also more time to successfully treat. This year we did not lose any animals to bloat but treated 104 bloats overall with 21 of the 32 head bloating. Again there were no bloats on the paddock of Meadow Brome and LIRD alfalfa which was approximately 30% Meadow Brome grass and 70% alfalfa on a dry-matter basis. This result is very encouraging and we noted that in both years, the steers preferred the Meadow Brome initially and we surmised that this extra fiber in the diet might have been responsible for the bloat protection.

Gains on test were down from last year when all results were around the 3 lbs./head/day; this year the overall A.D.G. was 2.71 lbs. Again like last year, half of the animals in each paddock carried a Rumensin bolus. The Rumensin bolus did not stop bloating but it did seem to have a positive effect, in that it tended to cut down the bloats and the bloats were less severe.

Following the main trial on bloat treatment, two additional demonstrations were completed. The first involved a crossover of animals on the Control Meadow Brome-LIRD paddock with animals in the LIRD paddock to get an indication if the same animals would bloat. We experienced similar results to the main test, that is animals that bloated on the low-bloat alfalfa tended to bloat on the control and visa versa with no animals bloating on the Meadow Brome-LIRD mixture.

The other trial we completed for one week was with the bloat preventatives, BloCare 4511, that is added to the water. We determined the steers were consuming 9 - 10 gallons of water/head/day and we added 15 ml/BloCare/animal/day one day before turning them into the control alfalfa paddock. The alfalfa was growing very fast, about one foot high and in the pre-bud stage at turn-out. We never treated any bloats and our gains increased. The steers appeared to be extremely full, but not bloated. This treatment proved to be 100% effective in our trial.

Currently our results are being calculated statistically to determine the confidence of our results. These final results will be available later this year.

Prepared by
Bazil Fritz, Livestock Agrologist

LIRD PROJECT STEERS - 1999
OVERALL WEIGHT GAINS & ADG FOR TIME ON SITE:

Steer ID	June 10 wt.		August 3 wt.		OVERALL
	Full Wt	Shr 5%	Full Wt	Shr 5%	ADG
1176	730	693.50	900	855.00	2.99
1177	790	750.50	975	926.25	3.25
1178	760	722.00	880	836.00	2.11
1179	725	688.75	840	798.00	2.02
1180	750	712.50	930	883.50	3.17
1181	760	722.00	940	893.00	3.17
1182	760	722.00	910	864.50	2.64
1183	740	703.00	910	864.50	2.99
1184	800	760.00	950	902.50	2.64
1185	700	665.00	850	807.50	2.64
1186	760	722.00	940	893.00	3.17
1187	700	665.00	850	807.50	2.64
1252	700	665.00	860	817.00	2.81
1253	740	703.00	940	893.00	3.52
1254	710	674.50	860	817.00	2.64
1255	780	741.00	925	878.75	2.55
1256	750	712.50	905	859.75	2.73
1257	700	665.00	850	807.50	2.64
1258	750	712.50	860	817.00	1.94
1259	800	760.00	970	921.50	2.99
1260	750	712.50	905	859.75	2.73
1261	710	674.50	905	859.75	3.43
1262	760	722.00	950	902.50	3.34
1263	750	712.50	925	878.75	3.08
1264	810	769.50	970	921.50	2.81
1265	660	627.00	870	826.50	3.69
1266	700	665.00	800	760.00	1.76
1267	750	712.50	860	817.00	1.94
1268	740	703.00	900	855.00	2.81
1269	725	688.75	905	859.75	3.17
1270	780	741.00	940	893.00	2.81
1464	n/a	n/a	820	779.00	n/a
AVERAGE:	***720***	***684***	***899.84***	***854.85***	***2.71***

BLOAT TREATMENTS SUMMARY:

B. ALL STEERS EXCEPT #1264, #1177 & # 1253 INCLUDED:

(# of head treated / total bloat treatments)

	LIRD +Bolus (7 head)	LIRD no Bolus (7 head)	CONTROL +Bolus (4 head)	CONTROL no Bolus (3 head)	LIRD + MB +Bolus (4 head)	LIRD + MB no Bolus (4 head)	TOTAL (32 head)
June 23 - July 5	4 / 5	5 / 15	2 / 5	3 / 5	0 / 0	0 / 0	14 / 30
July 5 - 12	0 / 0	2 / 3	3 / 10	3 / 9	0 / 0	0 / 0	8 / 22
July 12-19	3 / 4	3 / 7	3 / 4	2 / 2	0 / 0	0 / 0	11 / 17
TOTAL Jun23-Jul19	4 / 9	5 / 25	3 / 19	3 / 16	0 / 0	0 / 0	15 / 68
# Hd Bloated 4+ times	0	2	3	3	0	0	8
# Hd Never Bloated	3	2	1	0	4	4	14

TOTAL BLOAT TREATMENTS: ***15 HEAD / 69 TREATMENTS***
(29 head for 27 days)

(Did not pull the three steers out of the July 19- 20 data because cattle were reshuffled according to new status)

STEER WEIGHTS WHILE ON BLOCARE 4511

JULY 26 TO AUGUST 3 1999 - LIRD SITE

STEER ID	July 26 wt.		August 3 wt.		
	Full Wt	Shr 5%	Full Wt	Shr 5%	ADG (8 days)
1176	840	798	900	855	7.13
1177	920	874	975	926.25	6.53
1178	870	827	880	836	1.13
1179	800	760	840	798	4.75
1180	880	836	930	883.5	5.94
1181	880	836	940	893	7.13
1182	940	893	910	864.5	-3.56
1183	900	855	910	864.5	1.19
1184	860	817	950	902.5	10.69
1185	830	789	850	807.5	2.31
1186	890	846	940	893	5.88
1187	790	751	850	807.5	7.06
1252	860	817	860	817	0.00
1253	880	836	940	893	7.13
1254	810	770	860	817	5.88
1255	900	855	925	878.75	2.97
1256	880	836	905	859.75	2.97
1257	860	817	850	807.5	-1.19
1258	810	770	860	817	5.88
1259	950	903	970	921.5	2.31
1260	860	817	905	859.75	5.34
1261	840	798	905	859.75	7.72
1262	910	865	950	902.5	4.69
1263	910	865	925	878.75	1.72
1264	930	884	970	921.5	4.69
1265	820	779	870	826.5	5.94
1266	750	713	800	760	5.88
1267	850	808	860	817	1.13
1268	860	817	900	855	4.75
1269	930	884	905	859.75	-3.03
1270	940	893	940	893	0.00
1484	780	722	820	779	7.13
AVERAGE:	865.94	822.84	899.84	828.95	3.88

LIRD PROJECT STEERS - 1999
OVERALL WEIGHT GAINS & ADG FOR TIME ON SITE:

			June 10		August 03		
STEER ID	TREATMENT	BOLUS #	Full Wt	Shr 6%	Full Wt	Shr 6%	Overall ADG
1284	LIRD	2943	710	675	860	817	2.64
1291	LIRD	2944	710	675	905	859.75	3.43
1294	LIRD	2760	810	770	970	921.5	2.81
1295	LIRD	2942	660	627	870	826.5	3.69
1296	LIRD	2949	700	665	800	760	1.76
1298	LIRD	2751	740	703	900	855	2.81
1176	LIRD	2948	730	694	900	855	2.99
1187	LIRD	2947	700	665	850	807.5	2.64
AVERAGE			720.00	684.00	851.88	837.78	2.85
1257	LIRD		700	665	850	807.5	2.64
1268	LIRD		750	713	860	817	1.94
1177	LIRD	***	790	751	975	926.25	3.25
1178	LIRD	***	760	722	880	836	2.11
1180	LIRD		750	713	930	883.5	3.17
1181	LIRD		760	722	940	893	3.17
1184	LIRD		800	760	950	902.5	2.64
1188	LIRD		780	722	940	893	3.17
AVERAGE			753.33	720.81	915.63	869.84	2.78
1262	CONTROL	2757	700	665	860	817	2.81
1266	CONTROL	2756	750	713	905	859.75	2.73
1269	CONTROL	2945	800	760	970	921.5	2.99
1270	CONTROL	2941	780	741	940	893	2.81
AVERAGE			757.50	719.63	918.75	872.81	2.84
1263	CONTROL	***	740	703	940	893	3.52
1265	CONTROL		780	741	925	878.75	2.55
1179	CONTROL		725	689	840	798	2.02
1182	CONTROL		760	722	910	864.5	2.64
AVERAGE			755.00	713.69	903.75	858.56	2.88
1252	LIRD+MB	2758	760	722	950	902.5	3.34
1253	LIRD+MB	2759	750	713	925	878.75	3.08
1257	LIRD+MB	2950	750	713	860	817	1.94
1259	LIRD+MB	2946	725	689	905	859.75	3.17
AVERAGE			746.25	708.94	910.00	864.50	2.88
1290	LIRD+MB		750	713	905	859.75	2.73
1183	LIRD+MB		740	703	910	864.5	2.99
1186	LIRD+MB		700	665	850	807.5	2.64
1494	LIRD+MB		N/A	N/A	820	779	N/A
AVERAGE			730.00	693.50	871.25	827.69	2.69

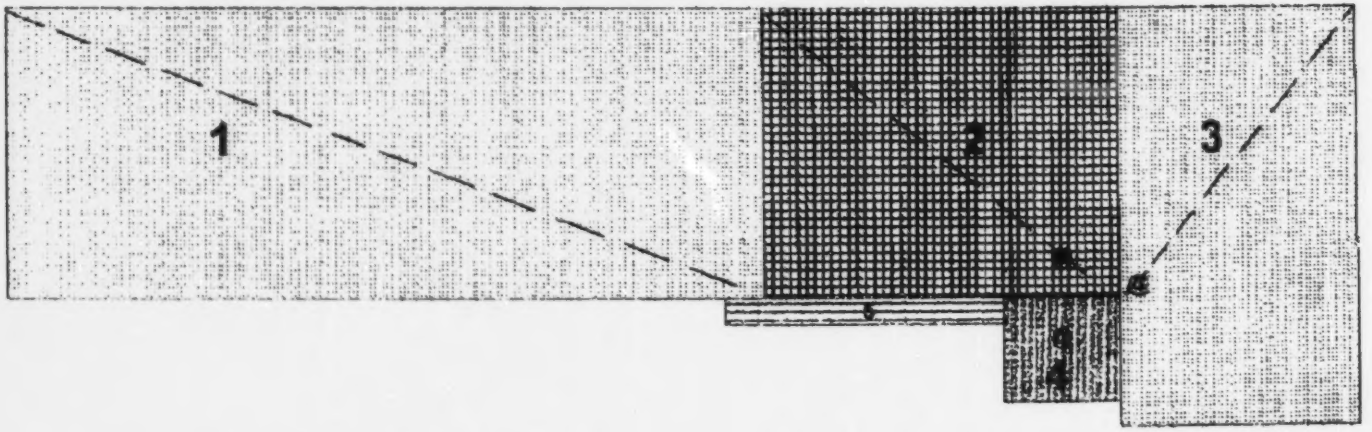
OVERALL AVERAGE - WEIGHT: 854.852

- ADG - 54days 2.71

(*** indicates cattle that received bolus at later date)

FROM : NOREEN FENSKE FAX NO. : 3066472659 Apr. 04 2000 10:20PM P2

LIRD ALFALFA - GRAZING TRIALS - YORKTON SITE MAP:



1. LIRD ALFALFA PADDOCK:
   - 10 acres total
   - 20 head - 1998
   - 16 head - 1999

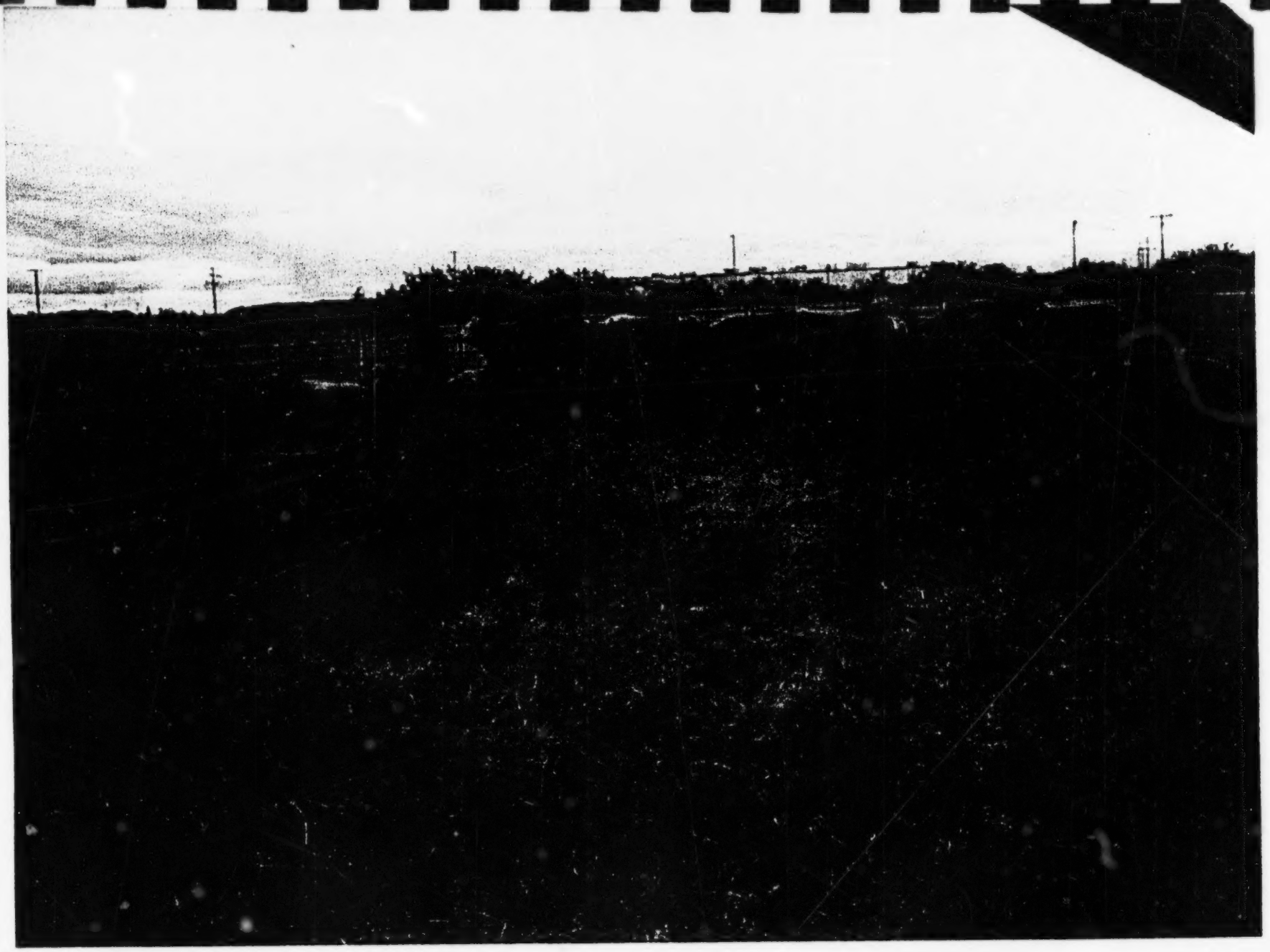
2. LIRD ALFALFA + MEADOW BROME PADDOCK
   - 5 acres total
   - 10 head - 1998
   - 8 head - 1999

3. BEAVER ALFALFA (CONTROL) PADDOCK
   - 5 acres total
   - 10 head - 1998
   - 8 head - 1999

4. Handling Facility

5. Alleyway from LIRD Paddock to water & Handling Facility

@ Location of water troughs



BEAVERDALE
Beef Producers Inc.
In Co-operation With
Sask. Agriculture & Food
LIRD (Low Bloat) ALFALFA SITE
¼ MILE NORTH
Sponsored by
SASK. WHEAT POOL · UNIV. of SASK.
MONSANTO · AGRI-FOOD INNOVATION FUND
AG. CANADA · DUCKS UNLIMITED

LIRD (LOW-BLOAT) ALFALFA

(1)

The results from the LIRD (Low Bloat) Alfalfa trials at the Yorkton site were quite consistent through the two years of grazing data collection.

The Rumensin bolus was used on half of the animals grazing on each paddock at the start of the season. In most cases it helped but did not prevent bloat entirely on either LIRD or Beaver paddocks. On a few animals which became "chronic bloaters" the Rumensin bolus was administered to try to alleviate the chronic problems. In some cases, the animals quit bloating immediately following treatment and in other cases, the animals continued to bloat as they had previously. In both years of use, the Rumensin bolus provided enough extra weight gain to more than compensate for its original purchase price. Therefore, coupled with the reduction in bloat cases, it would be recommended in all cases studied in this trial.

Over the two year trial, the highest risk paddock was, as expected, the Beaver (Control) paddock. However, contrary to original expectations, the LIRD Alfalfa did not provide a "safe" alternative, even when coupled with the Rumensin Bolus. Over two years of trials, the LIRD + Meadow Brome paddock provided the animals with the safest (zero incidence of bloat over two years) environment and also the highest rates of gain. This indicates that an alternative to "alfalfa" must be provided in the diet in order to alleviate the bloat problem.

Our grazing trial did not include a Beaver Alfalfa + Meadow Brome paddock so it is difficult to compare the results of LIRD and Beaver in the Meadow Brome mixed paddock and thus difficult to predict that LIRD was indeed significantly "safer" than Beaver would have been under the same circumstances. However, it seems safe to presume that the LIRD + Meadow Brome mixture would provide "safe grazing" under almost all circumstances, especially when combined with the Rumensin bolus.

In saying that the LIRD paddock and the Beaver (Control) paddocks are not "safe" for grazing consider the following:

— In 1998 cattle grazed test paddocks for approx. 21 days. During these 21 days, 75 incidences of bloat were treated out of the 30 head on these two paddocks.

(2)

-- In 1999, cattle grazed test paddock for approx. 26 days. During these 26 days, 104 incidences of bloat were treated out of the 24 head on these two paddocks.

-- In 1998, 5 head out of 20 on LIRD, and 2 head out of 10 on Beaver were never treated for bloat. These would be the ones left alive at the end of the summer if under minimal supervision, or none were treated.

-- In 1999, 5 head out of 16 on LIRD, and 1 out of 8 on Beaver were never treated for bloat and would have survived.

These numbers may be manageable with full-time labor for 30 or 40 head. However, if that number was increased 10 fold to 300 to 400 head, imagine the labor required and the numbers of losses when the animals could not be treated fast enough. That is what makes these two options (LIRD and Beaver) not practical in a "normal" setting.

No incidences of bloat were ever treated out of the LIRD + Meadow Brome paddock. This holds true even when chronic bloaters were placed into that paddock for their own safety to be removed from the alfalfa.

—In 1998 the animals were removed from this paddock, as they were from the other two, when the growth was over-lush and conditions were too dangerous in the alfalfa paddocks. It is not known whether or not there was a danger in this paddock - no bloats were recorded. The animals were removed to keep all other factors consistent with the trial.

-- One interesting note on the 1999 data also showed that a steer who bloated severely within 24 hours of being placed onto the Beaver paddock was given a bolus and placed in the LIRD + Meadow Brome paddock. No further incidence of bloat was recorded until at the end of the trial when the groups were switched around with the Beaver and LIRD +MB cattle going to the LIRD and the LIRD cattle being split between the Beaver and the LIRD + MB paddocks. That steer again became a chronic bloater within 24 hours of being placed onto the LIRD paddock. Also noticed during that same switch, chronic bloaters from the LIRD moved to LIRD + MB stopped bloating, chronic bloaters transferred from LIRD to Beaver and vice versa continued bloating. Thus we feel confident in saying that the LIRD + MB paddock should be safe under most circumstances.

DEAN JOHNSTON
BULK OIL SALES

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Beaverdale Beef Producers Inc.

March of 2000 represents 3 years of successful existence for the beef club. This year we had 16 members coming from many surrounding communities. Our goal as a non-profit organization is to obtain information on new technology and practices that pertains to beef production. Major funding for our projects has come from Agri-Food Innovation Fund (AFIF), Grazing and Pastures Technologies, Sask. Ag and Food, and Ducks Unlimited. Last year we had 2 employees, Noreen Fenske hired as Project Manager and Stacey Bierwagon, a local summer student.

This year brings to a close the LIRD project that was implemented on the 80-acre project site located west of Yorkton off highway #16. On this site a variety of alfalfa known as A.C. Grazeland was grown and grazed to determine if this low initial rate of digestion (LIRD) alfalfa could be used in a grazing program. It was determined that if mixed with other species of grass there would be room for this variety in a grazing program.

The Beaverdale Grazing Project established on the North ½ of 33-24-8-W2nd is entering its' 3rd year. Last year 72 heifers were grassed for 4 months. With the rise in cattle prices last year, the project was successful but more results will be determined at the end of the 5-year term.

A very successful field day show casing a forage and cattle handling demonstration was held in July at the farm of Bill and Janet Prybylski. In the spring of this year the club took part in tour of Pound Makers Feed lot in Lanigan.

For more information on the club or any of our projects, call:
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